

A wide-angle photograph of the Earth as seen from space, showing the curvature of the planet, the blue atmosphere, and white clouds over a dark landmass.

Using Air Quality Data to Inform and Engage

Jo Green, Associate Director, Ricardo

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Introduction

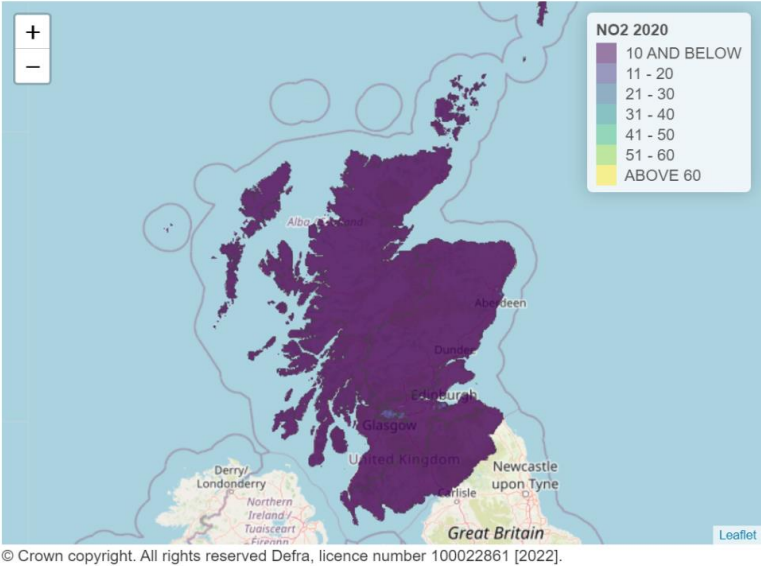
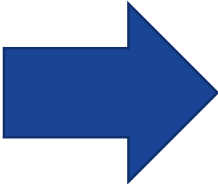
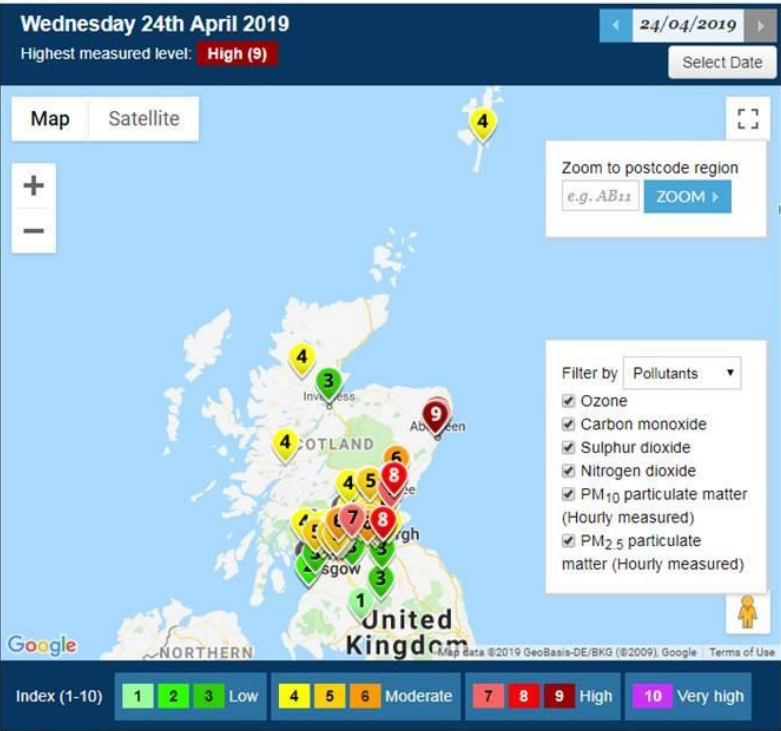
Innovative approaches to analysing air quality data in Delhi

Using air quality data to engage

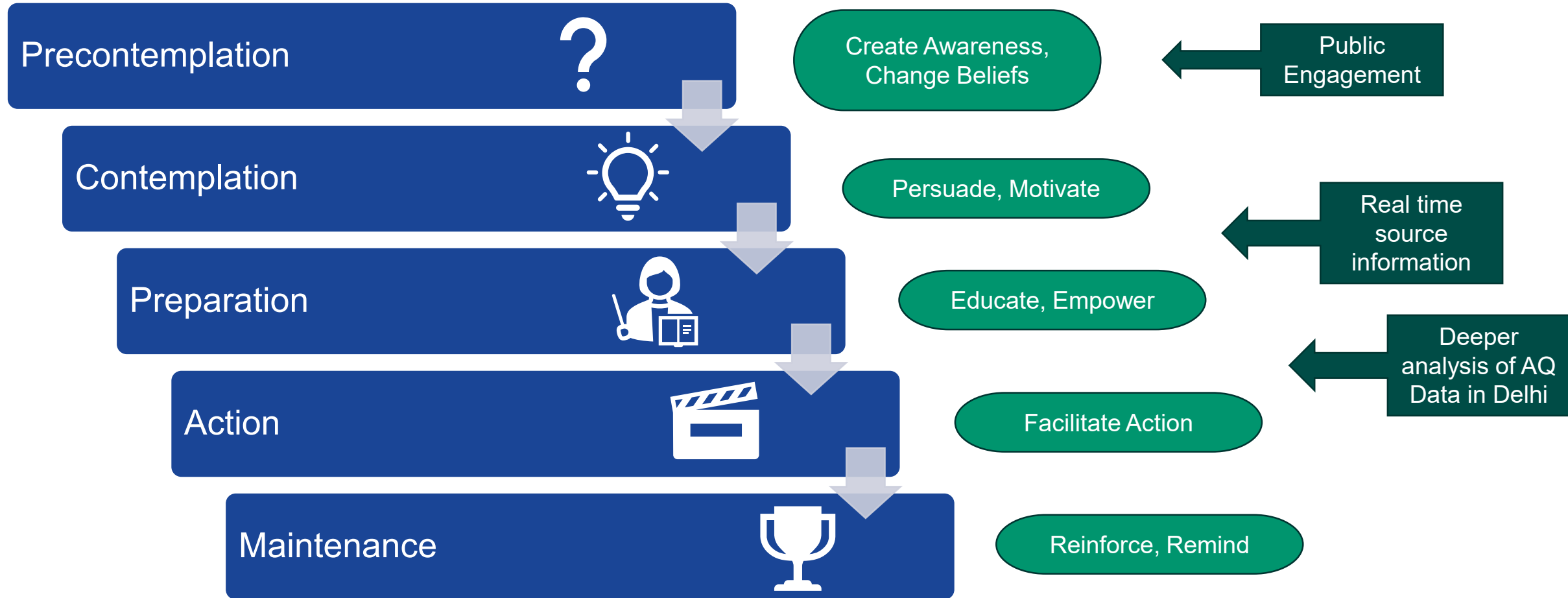
Air quality now – the future?

Conclusions

Introduction



Role of Data in Behaviour Change





Using air quality data to engage

Clean Air Days

Car Free Zones

Bike & E vehicle trials

Citizen Science activities with schools

AQ demonstration projects

Free public transport passes

Publicity events and news articles

Partnering with health services to promote active travel



Using air quality data to engage in Asia

Example project: Strengthening Knowledge and Actions for Air Quality Improvement



La Trinidad Clean Air Summit
(30 August 2022)



Erdenet Youth Poster-Making Contest (14 September 2022)



“Clean Air For Faridpur” Awareness Meeting (24 October 2022)

QUIZ BEE
ON CLEAN AIR IS IN LA TRINIDAD!

"Nalinis nga angin, para kanya tayo Amin!"
Our Environment, Our Responsibility

Date: 05 October 2022
Venue: La Trinidad Municipal Gymnasium
Time: 08:00 AM-12:00 NN

Who can join?
• All Filipino children ages 09-12 (Grade school Division)
• All Filipino children ages 14-19 (High school Division)

Prizes
• 1st prize - PHP 5,000.00
• 2nd prize - PHP 4,000.00
• 3rd prize - PHP 3,000.00

Poster-Making Contest in La Trinidad!

"Nalinis nga angin, para kanya tayo Amin!"
Our Environment, Our Responsibility

Date: 05 October 2022
Venue: La Trinidad Municipal Gymnasium
Time: 08:00 AM-12:00 NN

Who can join?
• All junior high school students
• All students under the Alternative Learning School (ALS) program

Prizes
• 1st prize - PHP 5,000.00
• 2nd prize - PHP 4,000.00
• 3rd prize - PHP 3,000.00



Airing of UNICEF-Mongolia Video “The impact of air pollution” in family health centers and schools (Pilot Communication Campaign) – September 2022



Installation of awareness sign boards in Faridpur

Using air quality data to engage

Demonstrating real-world air quality



Time: 2023-06-15 10:10:10



Case Study: Deep dive into analysing air quality data in Delhi

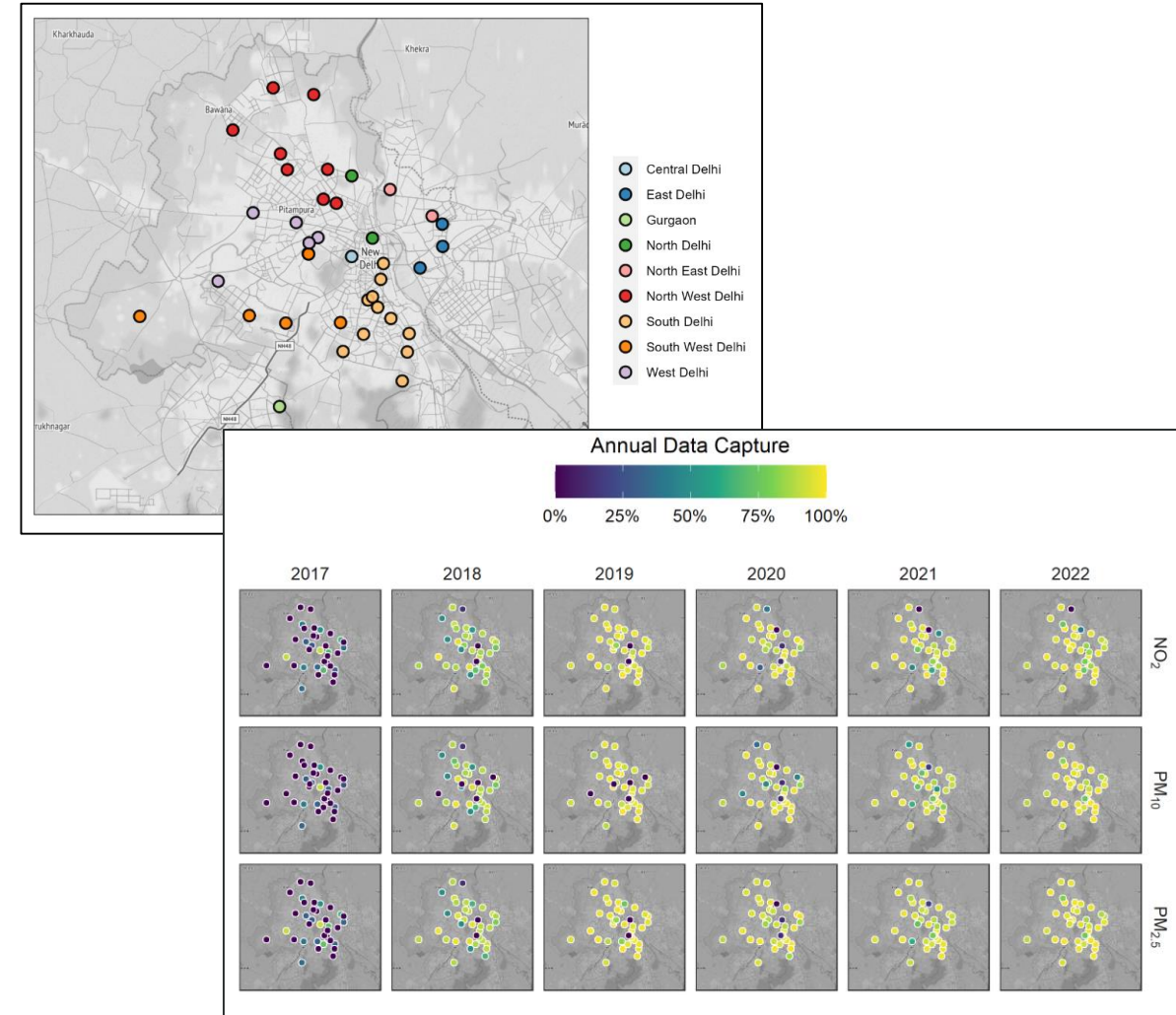


Deep Dive into Delhi Air Quality Data

Case Study: Innovative approaches to analysing air quality data in Delhi

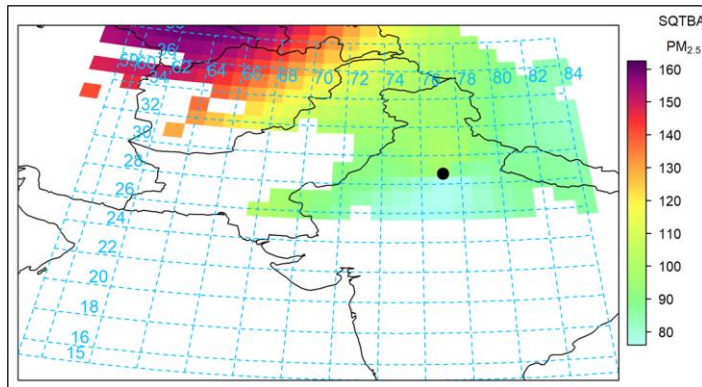
Background:

- Analysis of effectiveness of air pollution control measures as part of C40 Air Quality Programme
- Interventions assessed included:
 - Temporary ban on the use of firecrackers
 - Implementation of mechanical road sweepers to prevent dust from the road becoming airborne
 - Winter pollution measures to combat high winter concentrations



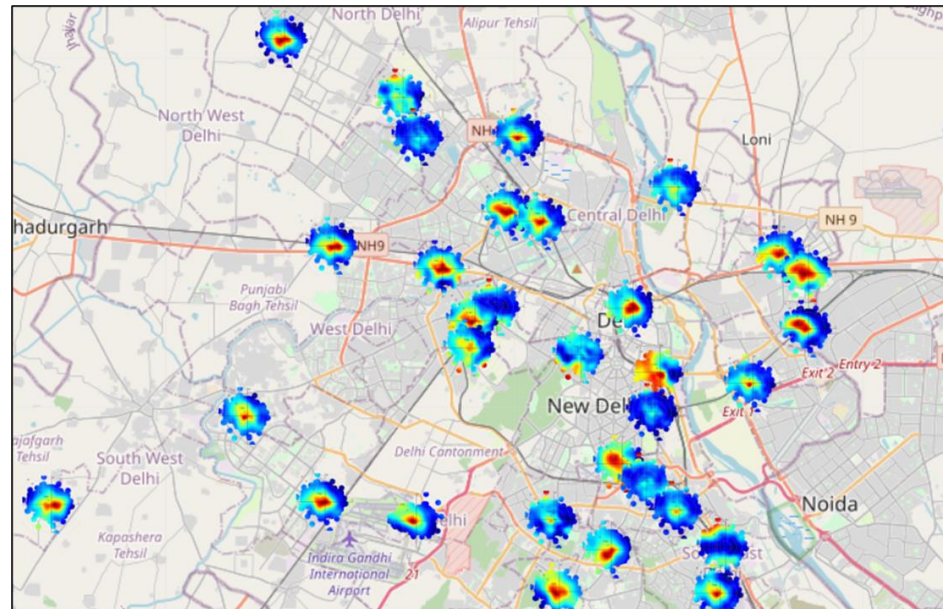
Deep Dive into Delhi Air Quality Data

Methods of analysis



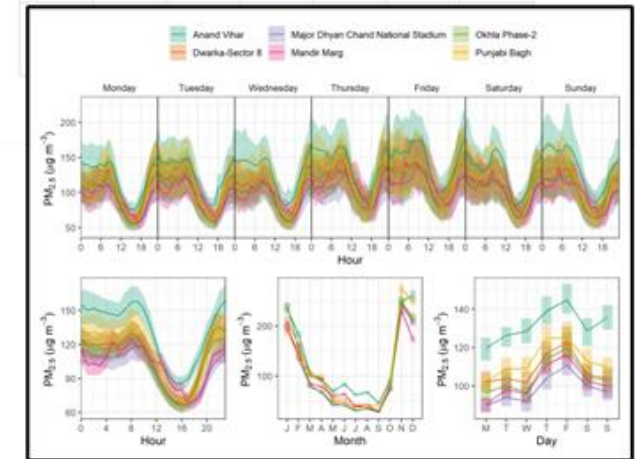
Back trajectories

- Origin of different air masses
- Highest $PM_{2.5}$ concentrations to the north-west of Delhi



Polar plots

- Relationship between measured concentrations and wind speed and wind direction
- Provides details on direction pollutants are being transported from and whether they are likely local or undergone long-range transport



De-weathering

Understand the independent effect of different variables

Time variation plots

Changing concentrations over different timescales

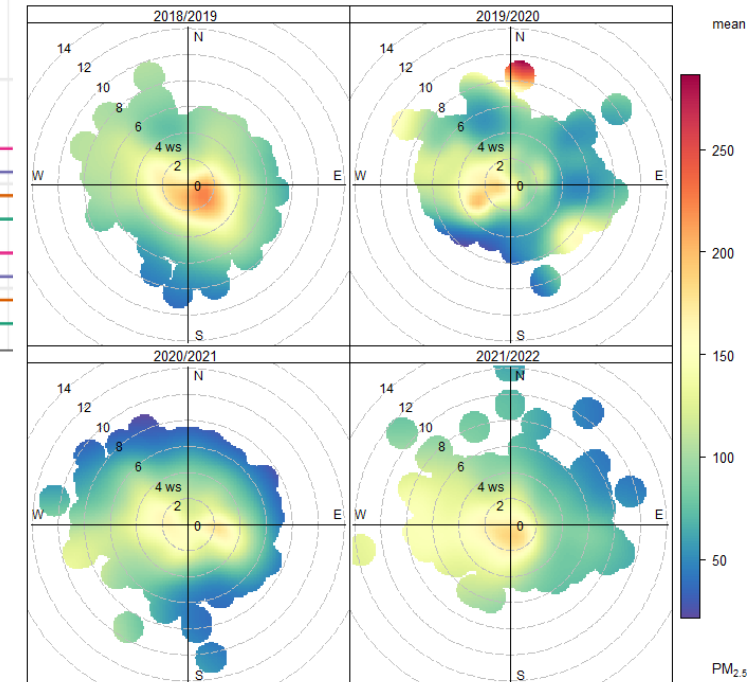
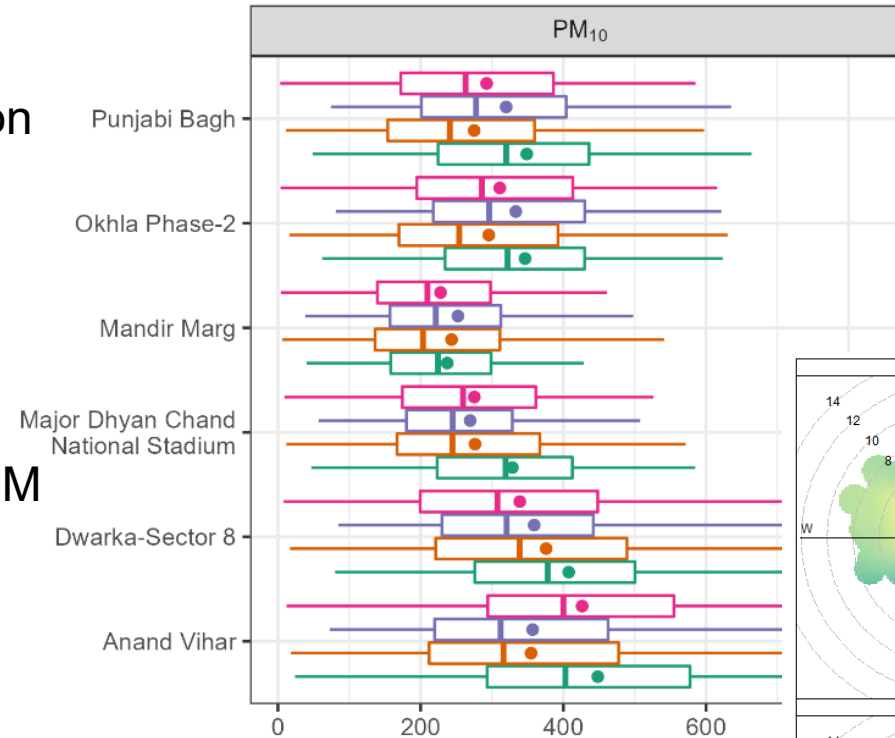
Theil-Sen Trends

Determine trends in pollutant concentrations over several years

Deep Dive into Delhi Air Quality Data

Key takeaways

- Assessment of the performance of mitigation measures:
 - Improvement in mean and maximum particulate matter concentrations during the ban on firecrackers
 - Moderate success of road sweeping activities with only some sites showing PM improvements
 - Reduction in the peak pollutant concentrations with winter interventions
- Provided engaging visualisations of air quality data – demonstrate to government the value of data in assessing impacts as well reinforcing the need for and impact of mitigation actions

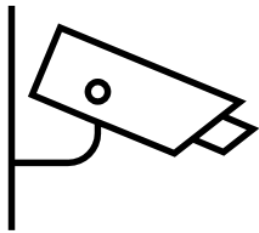




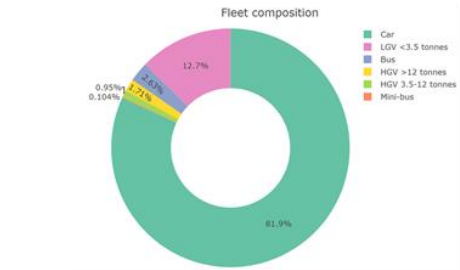
Air quality now – the future?

Nowcasting: Near Real Time Road Traffic Source Apportionment

Traffic Data



Real World Emissions Database

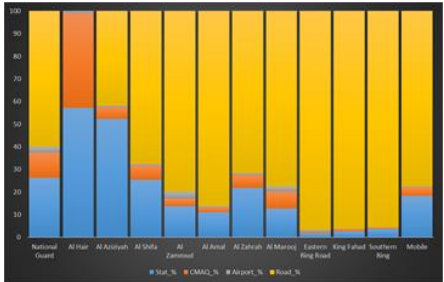
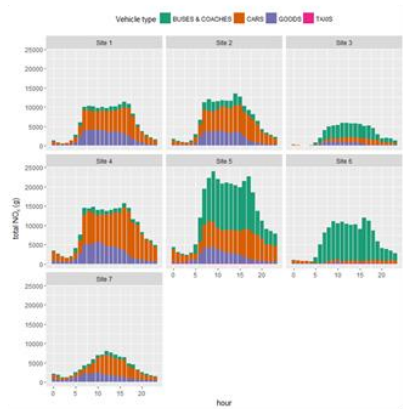


Ricardo Nowcast



AQ Reference monitoring

Meteorology and background



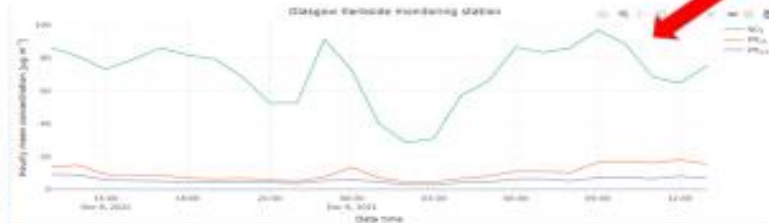
Better Policy making and tracking

Nowcasting: Near Real Time Road Traffic Source Apportionment

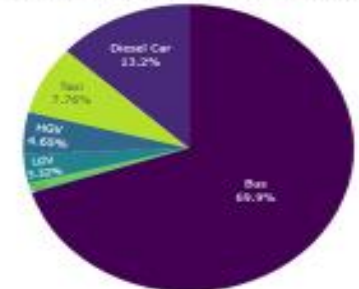
Near real time



Measurement data



Source apportionment of NO_x by vehicle type

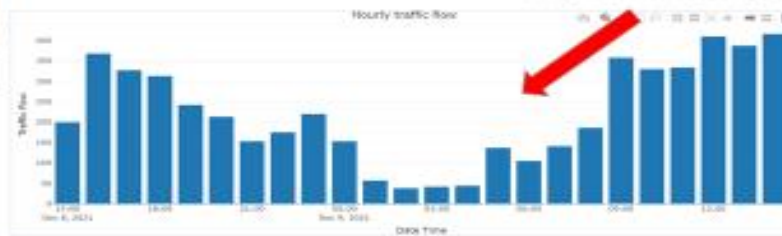


Real time source apportionment



Modelled ambient concentrations

Traffic information





Thank you for listening!

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